Policy Title :		
ABO Cell Grouping (Forward Grouping)		
Department	Index No.	Scope
Laboratory & Blood Bank	LAB-061	All Laboratory Staff
Issue Date	Revision NO	Effective Date
1433/06/06	3	1440/06/20
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1442/06/20	CBAHI (LB.50.)	7

01. Policy:

For red cell grouping, agglutination of red blood cells with a given antiserum is a positive result which the presence of the corresponding antigen on the red blood cells. Absence of agglutination is a negative test result indicating the corresponding antigen is not demonstrable. The patterns of the agglutination with the antisera are interpreted as the patient's ABO group.

02. Definition :

N/A

03. Purpose :

The ABO system is the most important blood group system where transfusion is concerned. In determining the ABO type, both red cell testing and serum testing must be performed routinely.

04. Procedure :

04.1. Specimen Requirements

Blood collected with or without anticoagulant may be used. Specimens are collected in EDTA. Testing should be performed as soon as possible. If a delay in testing occurs, specimens should be stored at 2-8 degrees centigrade and tested within 24 hours. No patient preparation is required.

04.2. TUBE METHOD

04.2.1. Materials

04.2.2. Glass test tubes

04.2.3. Blood Bank pipettes

04.2.4. Calibrated serologic centrifuge

04.2.5. Microscope and slides

04.2.6. Reagents

04.2.7. Blood Grouping serum anti-A

04.2.8. Blood Grouping serum anti-B

04.2.9. Blood Grouping serum anti-D

04.2.10. Normal Saline

04.3. Method

04.3.1. Wash an appropriate volume of patient red blood cells two times with isotonic saline to remove blood group substances.

04.3.2. Prepare a 3-5% suspension of red blood cells in isotonic saline.

04.3.3. Label three tubes with the patient's identification and the group being checked anti-A, anti-B, and anti-D.

04.3.4. Add one drop respectively of anti-A, anti-B and anti-D to the appropriately labeled tube.

04.3.5. Add one drop of the cell suspension to each test tube.

04.3.6. Mix by gently shaking. Tubes may be incubated 5-60 minutes at room temperature to enhance reactions of weakly reactive antibodies.

04.3.7. Centrifuge according to the optimum saline spin time listed for the centrifuge.

04.3.8. Examine macroscopically and microscopically

04.3.9. Record results in blood grouping register immediately.

04.4. GEL METHOD

04.4.1. Materials

04.4.1.1. ID Centrifuge.

04.4.1.2. ID working table.

04.4.1.3. ID pipettor EP-3/FP-2/FP-3.

04.4.1.4. ID Dispenser.

04.4.1.5. ID Suspension tubes.

04.4.1.6. ID Disposable tips.

04.4.1.7. Micro typing cards:

04.4.1.8. ABO/Rh (Profile:-A-B-DVI-ctl-A1-B)

04.4.2. Reagent:

04.4.2.1. ID Diluent 2(modified LISS)

04.4.3. Test procedure:

04.4.3.1. Allow all reagents to reach room temperature before use.

04.4.3.2. Identify the ID-micro typing card with the patient name and number. Remove the aluminum foil.

04.4.3.3. Prepare a 5% suspension of test red cells in ID-Diluent 2

04.4.3.4. 25yl red cells concentrate + 0.5ml ID- Diluent.

04.4.3.5. Mix well, incubate at room temperature for 10 minutes.

04.4.3.6. Add 10ul of test red cell suspension to each microtube in the ID-micro typing card

04.4.3.7. Centrifuge the micro typing card for 10 minutes in the ID- Centrifuge.

04.4.3.8. Interpret the results.

04.4.4. Interpretation

Results can only be accurately interpreted if the control ("CTL") micro tube gives a negative reaction.

A positive reaction may indicate the presence of an autoantibody.

Group	Anti-A	Anti-B	clt	A1 cells	B cells
A	4	0	0	0	4
B	0	4	0	4	0
AB	4	4	0	0	0
O	0	0	0	4	4

04.5. TANGO OPTIMO ANALYZER METHOD

04.5.1. Materials **& reagents:**

- N rack of the Tango Optima machine.
- Calibrated serologic centrifuge.

- Erytype™ S - ABO Donor.
- Bromelin for Erytype™(concentrate) .
- Erytype A1,A2, B and O cells.

04.5.2. Sample:

EDTA.anticoagulated blood sample after good centrifugation

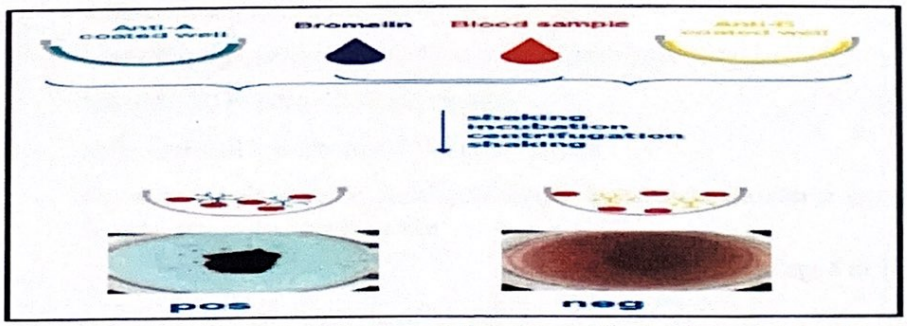
04.5.3. Test procedure:

- Centrifuge Patients& donor blood sample & put them in (N) Rack without cups.
- Load Erytype™ S - ABO Donor plates.
- Load Erytype A1,A2, B and O cells.
- Open the sample door & put the (N) Rack in its correct place.
- Push the Rack button to select the desired rack on the screen.
- Press manual entry button &write the ID number of patients or donors samples.
- Press (ABO)button to select the test &close the sample door.
- Press accepted entry button
- Press start button to start the test.
- After the end of the test validate the results.
- Print out the results.

04.5.4. Quality Control:

Control Set QC contain test erythrocytes with defined antigen pattern for ABO,Rh(D), phenotyping(RhCEce and Kell) as well as isoagglutinin for reverse typing,

- Group O Neg
- Group AB Pos
- Group A neg
- Group O Pos
- Solidscreen 11-Control is used for Antibody screen QC



04.6. Quality Control

Reagents are to be tested with appropriate positive and negative controls daily and the results recorded. See "Daily Quality Control" for procedure.

04.7. Interpretation

Agglutination of the red blood cells in the presence of the antiserum indicates the presence of the corresponding antigen. Likewise, no agglutination indicates the corresponding antigen is not demonstrable.

Reactions should show the following patterns:

Anti-	Anti	Anti	ABO Group Interpretation
-	-	-	**O**
+	-	+	**A**
-	+	+	**B**
+	+	+	**AB**

04.8. ORTHO VISION ANALYZER METHOD

04.8.1. Materials & reagents:

- antiA/antiB/AntiD ORTHO BIOVUE System cards
- Affirmagen (A1 and B cells) 3.5+/- 0.5% ORTHO BIOVUE System
- ORTHO BLISS
- VITORS 7% BSA

04.8.2. Sample:

- EDTA.anticoagulated blood sample after good centrifugation

04.9. Test procedure:

- Centrifuge Patients& donor blood sample & put them in a blue Rack without cups.
- Load antiA/antiB/AntiD ORTHO BIOVUE System cards
- Load Affirmagen (A1 and B cells) 3.5+/- 0.5% ORTHO BIOVUE System
- Load ORTHO BLISS and VITORS 7% BSA
- At the Graphical User Interface (GUI), touch Samples.
- Access the Samples screen by touching the Samples button on the menu bar or anywhere within the dark blue area of the Samples section.

- The GUI will display a graphical representation of the patient sample load positions. Touch the desired load position to be presented in the ORTHO VISION® Max Analyzer's load station. Use the Switch Load Station button to navigate between Load Stations 1 and 2.
- Touch Load/Unload. The software will display a wizard which prompts the operator to open the Load Station door.
- When the door is opened, the load station will present the quadrant that was selected.
- Load the samples
- Back at the GUI, touch a new load position and perform the same steps for any other trays to be loaded into the ORTHO VISION® Max Analyzer.
- When done loading all the trays, close the Load Station door.
- To assign a sample ID manually, touch the icon that corresponds to the sample tube.
- On the GUI, touch Assign to Position. The software opens the Assign to Position wizard.
- Enter the barcoded sample ID, which is displayed on the sample tube
- Touch Verify Sample button.
- Close the Load Station door.
- To assign profiles manually, touch the yellow icon that corresponds to the desired sample tube.
- Touch Create Order
- Verify the sample ID number on the screen that appears
- Touch Assign Profile, which is highlighted in red.
- Touch the profiles required for this particular sample for example Blood grouping ABO-Rh D

NOTE: Profiles displayed have been previously created on the analyzer during set up

- Touch Save and Start.

04.10. Reporting Results

- For the indoor patients:

  The Blood bank technician registers the results in a special blood grouping register for patient's band writes the blood grouping result on the blood grouping request signs and writes the date and time.

- For the outdoor patients:

  The Blood bank technician enters the results via the Medical Plus interface.

- For the donors:

  The Blood bank technician registers the results in a special blood grouping register for donors.

05. Responsibilities :

All laboratory of Al-Qunfudah General Hospital.

06. Equipment & Forms

06.1. NA Blood Grouping Register for patients.

06.2. Blood Grouping Register for donors

07. Attachment :

07.1. NA

08. Reference

08.1. The Technical manual of the American Association of Blood Banks.

Preparation , Reviewing & Approval Box

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